

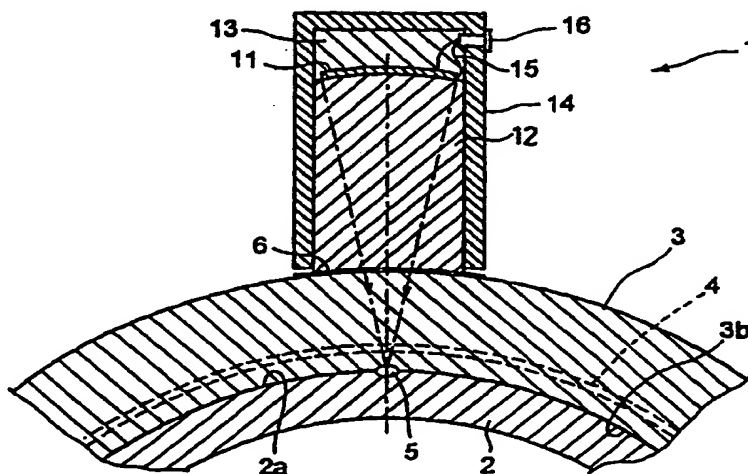
<b>(51) 国際特許分類6</b> <b>G01N 29/24, 29/22</b>	<b>A1</b>	<b>(11) 国際公開番号</b> <b>WO99/13327</b>  <b>(43) 国際公開日</b> 1999年3月18日(18.03.99)												
<b>(21) 国際出願番号</b> PCT/JP98/03962  <b>(22) 国際出願日</b> 1998年9月3日(03.09.98)  <b>(30) 優先権データ</b> <table border="0"> <tr> <td>特願平9/242290</td> <td>1997年9月8日(08.09.97)</td> <td>JP</td> </tr> <tr> <td>特願平9/300348</td> <td>1997年10月31日(31.10.97)</td> <td>JP</td> </tr> <tr> <td>特願平9/300349</td> <td>1997年10月31日(31.10.97)</td> <td>JP</td> </tr> <tr> <td>特願平9/356736</td> <td>1997年12月25日(25.12.97)</td> <td>JP</td> </tr> </table> <b>(71) 出願人 (米国を除くすべての指定国について)</b> 大阪瓦斯株式会社(OSAKA GAS CO., LTD.)(JP/JP) 〒541-0046 大阪府大阪市中央区平野町四丁目1番2号 Osaka, (JP) <b>(72) 発明者 ; および</b> <b>(75) 発明者 / 出願人 (米国についてのみ)</b> 北岡利道(KITAOKA, Toshimichi)(JP/JP) 井上富美夫(INOUE, Fumio)(JP/JP) 〒541-0046 大阪府大阪市中央区平野町四丁目1番2号 大阪瓦斯株式会社内 Osaka, (JP) 戸田裕己(TODA, Hiroki)(JP/JP) 〒658-0003 兵庫県神戸市東灘区本山北町四丁目15番2号 Hyogo, (JP)		特願平9/242290	1997年9月8日(08.09.97)	JP	特願平9/300348	1997年10月31日(31.10.97)	JP	特願平9/300349	1997年10月31日(31.10.97)	JP	特願平9/356736	1997年12月25日(25.12.97)	JP	<b>(74) 代理人</b> 弁理士 北村修一郎(KITAMURA, Shuichiro) 〒531-0072 大阪府大阪市北区豊崎五丁目8番1号 Osaka, (JP)  <b>(81) 指定国</b> JP, US, 欧州特許 (DE, FR, GB, IT, NL).  <b>添付公開書類</b> 国際調査報告書
特願平9/242290	1997年9月8日(08.09.97)	JP												
特願平9/300348	1997年10月31日(31.10.97)	JP												
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特願平9/356736	1997年12月25日(25.12.97)	JP												

**(54) Title: FOCUSING LONGITUDINAL WAVE ULTRASONIC PROBE FOR INSPECTING POLYMER MATERIAL AND ULTRASONIC DEFECT EVALUATION SYSTEM**

**(54) 発明の名称** ポリマー材料検査用フォーカス型縦波超音波探触子及び超音波欠陥評価装置

**(57) Abstract**

A focusing longitudinal wave ultrasonic probe for inspecting a polymer material, provided with a curved piezoelectric element and a matching material having an input end face in close contact with the concave surface of the curved piezoelectric element and an output end face fitted to the surface of an object to be inspected, i.e. a polymer material, wherein the acoustic impedance of the matching material is matched with that of the object or/and that of the curved piezoelectric element; and a defect evaluation system for ultrasonic flaw detector provided with two gate circuits and evaluation circuits connected to respective gate circuits so as to realize ultrasonic flaw detection while considering intricate reflection echo and fluctuation of sound velocity.



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP98/03962

A. CLASSIFICATION OF SUBJECT MATTER  
Int.Cl<sup>6</sup> G01N29/24, G01N29/22

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
Int.Cl<sup>6</sup> G01N29/00-29/28

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
Jitsuyo Shinan Koho 1922-1996 Toroku Jitsuyo Shinan Koho 1994-1998  
Kokai Jitsuyo Shinan Koho 1971-1998 Jitsuyo Shinan Toroku Koho 1996-1998

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	JP, 8-275944, A (Nihon Dempa Kogyo Co., Ltd.), 22 October, 1996 (22. 10. 96), Full text ; Figs. 1 to 3 (Family: none)	1, 2, 4 3, 5-7
Y	JP, 4-340464, A (Nissan Motor Co., Ltd.), 26 November, 1992 (26. 11. 92), Full text ; Figs. 1 to 11 (Family: none)	1, 2, 4
Y A	JP, 57-162591, A (Yokogawa Electric Corp.), 6 October, 1982 (06. 10. 82), Claims ; Figs. 3, 4 (Family: none)	1, 2, 4 3, 5-7
A	JP, 9-210971, A (Kubota Corp.), 15 August, 1997 (15. 08. 97), Full text ; Figs. 1 to 4 (Family: none)	8-11

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

<p>* Special categories of cited documents:          "A" document defining the general state of the art which is not considered to be of particular relevance          "E" earlier document but published on or after the international filing date          "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)          "O" document referring to an oral disclosure, use, exhibition or other means          "P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention          "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone          "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art          "&amp;" document member of the same patent family</p>
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Date of the actual completion of the international search  
17 November, 1998 (17. 11. 98)

Date of mailing of the international search report  
1 December, 1998 (01. 12. 98)

Name and mailing address of the ISA/  
Japanese Patent Office

Authorized officer

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